ALITA® LINEAR AIR COMPRESSORS

OPERATION & MAINTENANCE MANUAL

MODELS: AL-30, AL-40, AL-60, AL-80
AL-100, AL-120, AL-150, AL-200
AL-250, AL-300, AL-350, AL-400

c UL us CE

ALITA INDUSTRIES, INC.
Efficient and Reliable Air Moving Products

AL-

Model Number	DateCode / Serial Number	Date of Purchase

Dealer	Phone

Dealer Address

Remember to mail in your Warranty Registration

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Revision F, May 2010

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LIMITED WARRANTY

ALITA warrants to the original retail consumer purchaser ("Customer") that the ALITA product, when properly installed and operated under normal conditions of use, will be free from defects in materials and workmanship for a period of three (3) years from the date of purchase from ALITA or an authorized ALITA representative. This warranty applies only to ALITA products installed in the United States of America and Canada. Customer is responsible for registration of product warranty and maintaining a dated proof of purchase, and such registration and proof shall be used to determine warranty eligibility.

ALITA Limited Warranty covers only those defects which arise as a result of normal use of the product and do not apply to any: (a) defect or malfunctions resulting from failure to properly install, operate or maintain the ALITA product in accordance with printed instructions provided; (b) failures resulting from abuse, accident or negligence; (c) ALITA product which is not installed in accordance with applicable local codes, ordinances and good trade practices; (d) operation outside the ALITA product's specifications or used for purposes other than for what it was designed and manufactured; (e) improper or inadequate maintenance or modification, and (f) damage due to shipment, lightning, natural disaster, earthquake, fire, flood, force majeure or circumstances beyond the control of ALITA.

If within the duration of Limited Warranty, the ALITA product shall prove to be defective due to defective materials or workmanship of ALITA, ALITA shall either repair or replace the defective product, at ALITA's option. ALITA shall have no obligation to repair or replace until the Customer returns the defective product, together with dated proof of purchase and written notice of alleged defect to ALITA. Customer may be required at ALITA's request to verify that he or she is the original purchaser of the ALITA product and the ALITA product has been installed and operated in accordance with ALITA's instructions. Any replacement product may be either new or like-new, provided that it has functionality at least equal to that of the product being replaced. No requests for service under this warranty will be accepted if received more than 30 days after the term of the warranty.

ALITA shall be liable only for the cost of the replacement part, or the repair of any defective part. Customer shall be responsible for labor, cost of removal and installation at Customer's premises, transportation and insurance cost to and from ALITA, and any other incidental costs.

Correction of defects, in the manner and for the duration of the warranty described in this Limited Warranty, shall constitute complete fulfillment of all liabilities and responsibilities of ALITA to the Customer with respect to the product, and shall constitute full satisfaction of all claims, whether based on contract, negligence, strict liability or otherwise.

Except for the obligations specifically set forth in this Limited Warranty, in no event shall ALITA be liable for direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any other legal theory and whether advised of the possibility of such damages.

ALITA disclaims all other warranties with respect to ALITA product, whether implied, and specifically disclaim the implied warranties or conditions or merchantability, satisfactory quality, fitness of a particular purpose.

Unauthorized extensions of warranties by the customer shall remain customer's responsibility.

ALITA reserves the right to change or improve its products or any portions thereof without being obligated to provide such a change or improvement for units sold and/or shipped prior to such a change or improvement.

The limited warranties described herein shall be the sole and exclusive remedy available to the Customer. This warranty is void if the ALITA product has been improperly used, mishandled, disassembled or modified.

Customer is responsible for determining the suitability of ALITA products for customer's use or resale or for incorporating them into objects or applications which customer designs, assembles, constructs or manufactures.

SAFETY INSTRUCTIONS

Special care should be taken when operating an electrical device. To avoid serious or fatal personal injury or major property damage, read and follow all safety instructions in manual and on pump.

WARNINGS

- DO NOT operate pump in the vicinity of explosive or flammable materials, liquids or gases.
- DO NOT operate pump if it has being inundated by water.
- DO NOT operate pump if it has a damaged cord or plug, if it is not working properly, or if it has been damaged or dropped.
- To avoid Electric Shock resulting from water back-siphoning, pump must be installed above the water level.

CAUTIONS

- Operate the pump only in fully assembled state.
- This product is designed to pump air only. Do not attempt to pump any other gases or fluids. Any airborne contaminants must be filtered out.
- Do not lubricate this oil-less air pump. No parts on this pump have oil or require lubrication. Avoid close proximity to products that may release oil or gasoline vapors.
- Connect the pump only to an outlet with GFCI (see Electrical Safety).
- Reduce the risk of bursting by only use air handling devices rated for pressure no less than 8 psi or 55 kPa.
- Keep power cable away from heated surfaces and pedestrian traffic.

INSTALLATION and OPERATION

Place the pump upright securely on a dry and stable surface that is easily accessible for inspection. Avoid location or elevation that will be inundated by water. For aeration applications, the pump must be installed above the water surface level.

PROPER VENTILATION

Allow ample clearance around the pump for free air circulation. Good ventilation ensures proper heat dissipation which lowers internal operating temperature and prevents thermal stress to key components.

When pump is to be placed under a protective enclosure, avoid designs that can cause thermal insulation. Install forced ventilation system to promote air circulation under the enclosure and improve pump reliability. Certain indoor installation may also require forced ventilation when the forces of air pressure and gravity are not enough to circulate air through a room or building.

For outdoor installations, shaded area that shelters from excessive weathering is ideal. Do not allow pump to swelter under intense sun and avoid places with excessive dust or debris.

The ambient operating temperature for this pump is between 5°C (41°F) and 40°C (104°F). Operation of pump in temperature outside of the recommended temperature range may result in malfunction or severely shorten the pump life.

PIPE SIZING

Utilize air tubing or pipes that are equal or larger than the pump discharge port. Matching pipe fittings should be used to reduce frictional losses. Incorrect pipe sizing can cause unsatisfactory performance.

When selecting or constructing an air manifold, the number of outlet fittings and their orifice size must be considered carefully to minimize frictional losses. Do not block or restrict pump discharge for extended periods. Install a bleed valve to vent any excess air volume and attach an air diffuser as silencer or muffler.

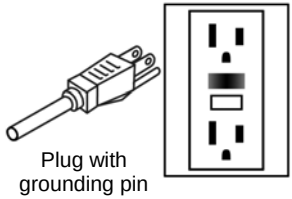
ELECTRICAL SAFETY

Form a drip loop with the power cord before connecting to the electrical terminal. Drip loops can prevent water from traveling down the cord and entering the power connection.

In the event of an electrical short circuit, grounding reduces the risk of electric shock by providing an escape wire for the electric current. This pump is equipped with a cord having a grounding wire with an appropriate grounding plug. The plug must be plugged into an electrical terminal that is properly installed and grounded in accordance with all local codes and ordinances. Do not modify the plug provided; if it does not fit the outlet, have the proper outlet installed by a qualified electrician.

Connect the pump only to a terminal with **Ground Fault Circuit Interrupter (GFCI)** installed. This device should serve to interrupt the flow of electric current in the event of ground faults (electrical current that unintentionally flows to ground). Check proper operation of GFCI every month, and replace faulty GFCI immediately.

Electrical Outlet with GFCI



Plug with grounding pin

EXTENSION CORD

If an extension cord is required, use only a 3-wire extension cord that has a 3-blade grounding plug, and a 3-slot receptacle that accepts the plug on the pump. Be sure to use one heavy enough to carry the current the pump draws. For lengths less than 50 feet, No. 16/3 AWG extension cord shall be used. An undersized cord can result in a drop in line voltage, loss of power and overheating. Replace any damaged extension cord immediately.

MAINTENANCE INSTRUCTIONS

Periodic pump maintenance is required for reliable continuous operation. Any maintenance of the pump other than those described herein this manual must be performed by an authorized service facility.

CAUTION: Always turn off the power and unplug from electrical terminal before any maintenance. Failure to observe this precaution can result in serious accident.

AIR FILTER

Air filter pad under the filter cover should be cleaned every 3 to 6 months. Wash the filter pad gently in mild, soapy water then rinse thoroughly. Allow filter pad to dry completely before reinstalling.

DIAPHRAGM MODULES

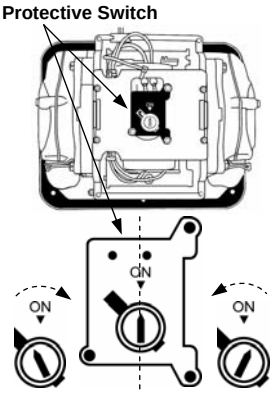
Diaphragm module replacement is typically recommended for every 24 months of operation. Replacement cycle may differ from application to application, it is prudent to perform the replacement before any actual diaphragm failure.

Diaphragm Replacement Kit (DRK) can be ordered from Alita Industries or authorized Alita representative.

Diaphragm Module Replacement

1. Set pump upside down (remove filter cover for stability if required), unscrew and remove all upper housing screws. Then return pump to upright position and lift away upper housing. Number of housing screws: AL-30~80 (4x), AL-100~200 (6x), AL-250~400 (12x)
2. Detach the L-tube from discharge port of each diaphragm housing.
3. Select a diaphragm housing on core frame, remove its 4 corner screws, then pull housing away. Proceed to remove the hex nut and washer from center of the diaphragm then pull and slide the entire diaphragm block away from magnetic rod and core frame.
4. Select a new diaphragm block from the DRK, align shape with core frame and magnetic rod then slide over the rod screw. Secure assembly firmly with washer and hex nut. Apply 1 to 2 drops of removable grade threadlocker between the hex nut and protruded rod screw.
5. Install new diaphragm housing then secure with 4 corner screws.
6. Attach L-tube to the discharge port of the new diaphragm housing then secure with silicone band or wire hose clamp.
7. Repeat step #3 through #6 on opposite side.
   IMPORTANT: Do not mix old and new parts. For reliable operation, always replace both diaphragm modules in the pump at the same time.
8. Inspect the position of magnetic rod from the top. Magnetic rod should be centered between the electromagnets. No contact should exist between the magnetic rod and the two electromagnets.

9. If the pump includes a protective switch on top of the pump core, rotate and reset the switch to ON position. (See illustration)
10. Install upper housing, and secure firmly with all housing screws.



Magnetic Rod Replacement

Magnetic Rod between the two diaphragms may get damaged if diaphragm failure has already occurred. If the magnetic rod has suffer damages, order a new magnetic rod along with the diaphragm replacement kit.

In case of unusual noise or odor from the pump, turn off the power immediately, consult the maintenance guide, or contact your nearest pump representative or Alita service department for assistance.

PARTS

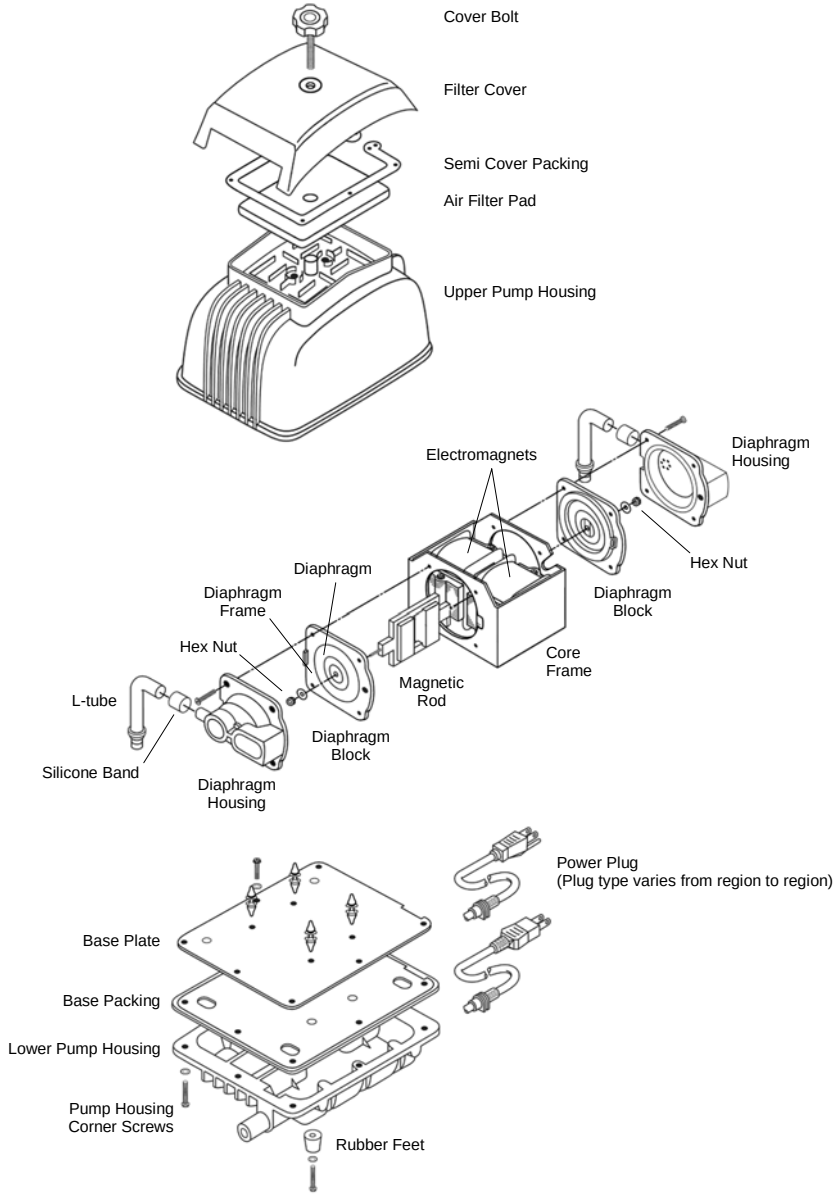
PARTS / MODEL	DIAPHRAGM REPLACEMENT KIT	MAGNETIC ROD
AL-30	DRK40	MR30
AL-40	DRK40	MR40
AL-60	DRK60	MR60
AL-80, AL-100	DRK120	MR100
AL-120	DRK120	MR120
AL-150, AL-200	DKR200	MR200
AL-250	DRK120x2	MR120x2
AL-300	DRK200x2	MR200x2
AL-350, AL-400	DRK200x2	MR200x2

Standard Diaphragm Replacement Kit includes:

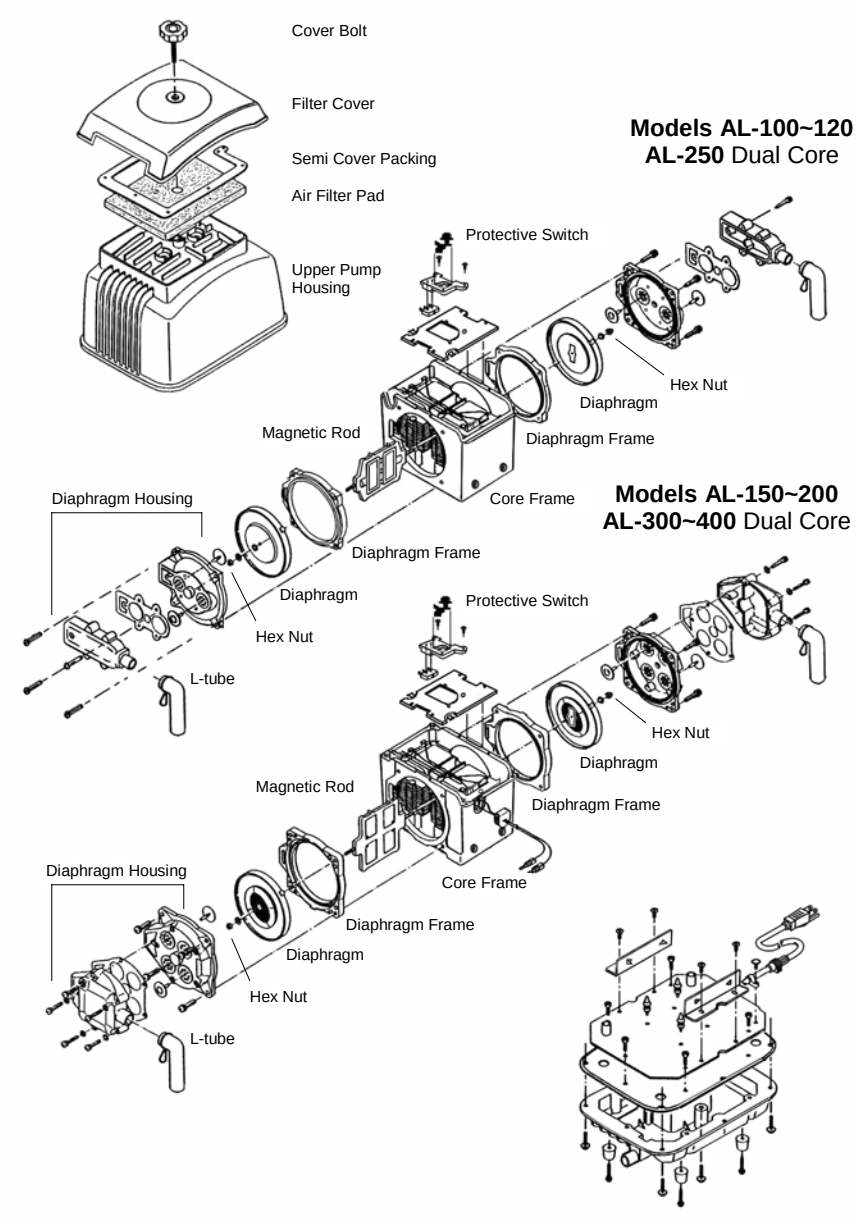
Diaphragm Block (2x)	Semi Cover Packing (1x)
Diaphragm Housing (2x)	Hex Nut & (2x) Washer (2x)
Air Filter Pad (1x)	Instruction Sheet

For parts identification, please refer to Assembly Diagrams.

Assembly Diagram for Models AL-40 ~ AL-80



Assembly Diagram for Models AL-100 ~ AL-400



Base Plate, Power Plug and
Lower Pump Housing Assembly

TROUBLESHOOTING GUIDE

❖ Pump does not start

- Poor electrical connection: Plug the power plug firmly into AC outlet.
- Power cord damage: Contact ALITA for repair service.
- GFCI tripped: Check for moisture on plug or water inside the pump. Replace faulty GFCI and/or try another GFCI protected AC outlet.

❖ There exist a high humming or hissing noise

- High backpressure: Reduce pressure load or bleed off excess air flow.
- Poor air distribution lines: Re-configure or resize pipe lines and fittings, use sound dampening materials, make firm and stable connections.

❖ Pump stops intermittently

- High operating temperature: Follow Proper Ventilation instructions on this manual. Allow thermal protection circuit to reset after cooling.

❖ Reduced flow rate or performance (after a period of usage)

- Faulty air distribution medium: Replace clogged or damaged air line, clean air control valves or release bends in flexible tubing.
- Pump intake blocked: Remove blockage from pump intake.
- Fouled air diffusers: Replace or clean air diffuser thoroughly.
- Worn diaphragms: Replace aged or damaged diaphragm modules. See Maintenance Instructions.

❖ Pump stops and will not start (after a period of usage)

- Diaphragm failure, magnetic rod adhere to electromagnet: Open pump for inspection. Check for any damage to magnetic rod. Contact ALITA for assistance and procure replacement parts.
- For models AL-100~400 and certain models of AL-60/80 Protective Switch activated: Procure Diaphragm Replacement Kit for maintenance. Follow instructions #1, #9 and #10 on Diaphragm Module Replacement Procedure to reset Protective Switch.

❖ Pump produces an abnormal noise (after a period of usage)

- Diaphragm failure: Stop pump operation immediately. Open pump for inspection. Check for any damage to magnetic rod. Contact ALITA for assistance and procure replacement parts.

If none of the prescribed solution can help you resolve your pump problem, contact ALITA for repair service instructions. DO NOT ATTEMPT to repair the pump on your own.

For repair or service, contact your Alita representative or Alita Industries first for instructions and to receive an authorization number prior to sending of the pump. Alita Industries will not be responsible for any lost or misdirected package.

When sending a pump for service or repair, please include the following:

1. Dated proof of purchase.
2. Legible contact information and return address
   i.e. Name
   Address
   Telephone / mobile number
   Fax number
   Email address
   etc.
3. Description of the pump application and installation setup. (Include drawings or photographs if possible.)
4. Summary of the operating conditions and history.
5. Detailed description of the problems.

Every effort has been made to ensure the completeness and accuracy of this document. Please contact Alita Industries if you notice any possible error or omission.

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